

What is claimed is:

1. An isolated polynucleotide comprising a manganese superoxide dismutase regulatory element derived from a nucleotide sequence selected from the group
5 consisting of SEQ NO:1 and SEQ ID NO:2, the regulatory element being capable of causing inducible transcription or expression of an operably linked heterologous polynucleotide.
2. An isolated human manganese superoxide dismutase regulatory element derived
10 from the nucleotide sequence of SEQ NO:2, the regulatory element being capable of causing inducible transcription or expression of an operably linked heterologous polynucleotide.
3. An isolated rat manganese superoxide dismutase regulatory element derived
15 from the nucleotide sequence of SEQ ID NO: 1 or SEQ NO:5, the regulatory element being capable of causing inducible transcription or expression of an operably linked heterologous polynucleotide.
4. An isolated regulatory element of any one of the preceding claims operably
20 linked to a heterologous polynucleotide so that, upon activation of the regulatory element, transcription or expression of the heterologous polynucleotide is induced.
5. An isolated regulatory element of any one of the preceding claims comprising at
least 230 contiguous base pairs of the nucleotide sequence of SEQ NO:1 or SEQ ID
25 NO:2.
6. An isolated regulatory element of any one of the preceding claims, wherein the heterologous polynucleotide encodes a cytoprotectant.
- 30 7. An isolated regulatory element of any one of the preceding claims, wherein the heterologous polynucleotide encodes an antisense mRNA.

09856766.032301

8. An isolated regulatory element of any one of the preceding claims which induces transcription or expression of an operatively linked heterologous polynucleotide in the presence of an inflammatory stimulus.

5 9. An isolated regulatory element of claim 8, wherein the inflammatory stimulus is selected from the group consisting of TNF- α , IL-1 β , and LPS.

10. An isolated regulatory element of any one of the preceding claims which induces transcription or expression of an operatively linked heterologous polynucleotide in the
10 presence of 5-aminosalicylic acid.

11. An isolated regulatory element of any one of the preceding claims operatively linked to a promoter sequence.

15 12. The isolated regulatory element of claim 11, wherein the promoter is the Herpes simplex thymidine kinase promoter.

13. An isolated regulatory element capable of causing inducible transcription or expression of an operably linked heterologous polynucleotide, wherein the regulatory
20 element comprises a nucleotide sequence having at least about 90% sequence identity to the nucleotide sequence of SEQ ID NO:1.

14. An isolated regulatory element capable of causing inducible transcription or expression of an operably linked heterologous polynucleotide, wherein the regulatory
25 element comprises a nucleotide sequence having at least about 70% sequence identity to the nucleotide sequence of SEQ ID NO:2.

15. A cell transformed with an isolated regulatory element of any one of the preceding claims.

16. An inducible expression system comprising:

a) an isolated polynucleotide comprising a regulatory element derived from a nucleotide sequence selected from the group consisting of SEQ NO:1, nucleotide sequences having at least about 90% identity to SEQ ID NO:1, SEQ ID NO:2, and nucleotide sequences having at least about 70% identity to SEQ ID NO:2, wherein the regulatory element induces transcription or expression of an operably linked heterologous polynucleotide upon activation; and

b) a compound which activates the regulatory element, or a polynucleotide encoding a compound which activates the regulatory element.

10

17. The expression system of claim 16 wherein the regulatory element is a human regulatory element

18. The expression system of claim 16 wherein the regulatory element is a rat regulatory element

15

19. The expression system of claim 16 wherein the compound which activates the regulatory element is an inflammatory stimulus.

20

20. The expression system of claim 19 wherein the compound which activates the regulatory element is selected from the group consisting of TNF- α , IL-1 β , and LPS.

21. The expression system of claim 16 wherein the compound which activates the regulatory element is 5-aminosalicylic acid.

25

22. The expression system of claim 16 further comprising a heterologous polynucleotide operably linked to the regulatory element.

23. The expression system of claim 16 further comprising a promoter operably linked to the regulatory element.

30

09856766-082801

24. A method of producing a polypeptide comprising introducing the expression system of claim 22 into a cell under conditions suitable for expression of the heterologous polypeptide.

5 25. A method of achieving inducible transcription or expression of a heterologous polynucleotide in a cell, the method comprising introducing into a cell an isolated polynucleotide comprising a manganese superoxide dismutase regulatory element derived from a nucleotide selected from the group consisting of SEQ NO:1, nucleotide sequences having at least about 90% identity to SEQ ID NO:1, SEQ ID NO:2, and
10 nucleotide sequences having at least about 70% identity to SEQ ID NO:2, the regulatory element being capable of causing inducible transcription or expression of an operably linked heterologous polynucleotide.

15 26. The method of claim 25 further comprising introducing into the cell an effective amount of a compound which activates the regulatory element to induce transcription or expression of an operatively linked polynucleotide, or a polynucleotide encoding the compound.

20 27. The method of claim 26 wherein the compound is an inflammatory mediator.

28. The method of claim 27 wherein the compound is selected from the group consisting of TNF- α , IL-1 β , and LPS.

25 29. The method of claim 26 wherein the compound is 5-aminosalicylic acid.

30. The method of claim 25 wherein the regulatory element is operatively linked to a heterologous polynucleotide.

09856766-082801